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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,274	10/15/2003	Ying Chin Yeh	BOEI-1-1216	8967
7590	08/11/2004		EXAMINER	
Michael S. Smith BLACK LOWE & GRAHAM PLLC 816 Second Avenue Seattle, WA 98104			TO, TUAN C	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
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GROUP 3600

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p align="center">10/687,274</p>	<p>Applicant(s)</p> <p align="center">YEH, YING CHIN</p>	
	<p>Examiner</p> <p align="center">Tuan C To</p>	<p>Art Unit</p> <p align="center">3663</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 12-14, 24, 34, 44, and 45 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 5-11, 15-23, 25-33 and 35-43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input checked="" type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>01/27/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 4, 12-14, 24, 34, 44, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Yount et al. (U.S. 6443399B1).

Claim 1:

With respect to claim 1, the reference to Yount et al. has been cited as directing to either a fly-by-wire system or method performed on an aircraft in which the IMA (410) (integrated modular avionics" and FCM (402) (flight control module) are one the pairs of computer system being existed on an aircraft (Yount et al, figure 4, IMA 410, FCM 402). The system disclosed by Yount includes plurality of line replaceable units, which are the ACEs (actuator control electronics), coupled to a plurality of actuators (406). As graphically shown in figure 4 of Yount et al. the actuator control units (400) receive the digital control data from the pair of IMA/FCM (Yount et al., figure 4, IMA 410, FCM 402).

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With regard to claim 4, the reference to Yount et al. shows that the ACE (400) stands for the line replaceable units that are configured to receive the control data of the IMA/FCM pair as said above (Yount et al, figure 4, ACE 400).

With regard to claims 12 and 13, the Yount et al. patent shows that the integrated modular avionics unit is connected with the flight control module unit, a plurality of actuators, and a plurality of actuator control units included within the aircraft (Yount et al, figure 4; column 5, lines 42-49).

Claim 14:

With respect to claim 14, the reference to Yount et al. has been cited as directing to either a fly-by-wire system or method performed on an aircraft in which the IMA (410) (integrated modular avionics" and FCM (402) (flight control module) are one the pairs of computer system being existed on an aircraft (Yount et al, figure 4, IMA 410, FCM 402). The system disclosed by Yount includes plurality of line replaceable units, which are the ACEs (actuator control electronics), coupled to a plurality of actuators (406). As graphically shown in figure 4 of Yount et al. the actuator control units (400) receive the digital control data from the pair of IMA/FCM (Yount et al., figure 4, IMA 410, FCM 402).

Claim 24:

With respect to claim 24, the reference to Yount et al. has been cited as disclosing a fly-by-wire system method and a computer program product on an aircraft in which the IMA (410) (integrated modular avionics" and FCM (402) (flight control module) are one the pairs of computer system being existed on an aircraft (Yount et al, figure 4, IMA 410, FCM 402). The system disclosed by

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Yount includes plurality of line replaceable units, which are the ACEs (actuator control electronics), coupled to a plurality of actuators (406). As graphically shown in figure 4 of Yount et al. the actuator control units (400) receive the digital control data from the pair of IMA/FCM (Yount et al., figure 4, IMA 410, FCM 402).

Claim 34:

With respect to claim 34, the reference to Yount et al. has been cited as directing to either a fly-by-wire system on an aircraft in which the IMA (410) (integrated modular avionics" and FCM (402) (flight control module) are one the pairs of computer system being existed on an aircraft (Yount et al, figure 4, IMA 410, FCM 402). The system disclosed by Yount includes plurality of line replaceable units, which are the ACEs (actuator control electronics), coupled to a plurality of actuators (406). As graphically shown in figure 4 of Yount et al. the actuator control units (400) receive the digital control data from the pair of IMA/FCM (Yount et al., figure 4, IMA 410, FCM 402).

Claim 44:

With respect to claim 44, the reference to Yount et al. has been cited as directing to an aircraft system and method in which the IMA (410) (integrated modular avionics" and FCM (402) (flight control module) are one the pairs of computer system being existed on an aircraft (Yount et al, figure 4, IMA 410, FCM 402). The system disclosed by Yount includes plurality of line replaceable units, which are the ACEs (actuator control electronics), coupled to a plurality of actuators (406). As graphically shown in figure 4 of Yount et al. the actuator

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control units (400) receive the digital control data from the pair of IMA/FCM (Yount et al., figure 4, IMA 410, FCM 402).

Claim 45:

With respect to claim 45, the reference to Yount et al. has been cited as directing to either a fly-by-wire system or method performed on an aircraft in which the IMA (410) (integrated modular avionics" and FCM (402) (flight control module) are one the pairs of computer system being existed on an aircraft (Yount et al, figure 4, IMA 410, FCM 402). The system disclosed by Yount includes plurality of line replaceable units, which are the ACEs (actuator control electronics), coupled to a plurality of actuators (406). As graphically shown in figure 4 of Yount et al. the actuator control units (400) receive the digital control data from the pair of IMA/FCM (Yount et al., figure 4, IMA 410, FCM 402).

Allowable Subject Matter

After carefully searching some areas that are relevant to the subject matter of the claimed invention, the examiner has found that none of the references discloses the following: "the plurality of redundant pairs of computer systems includes three redundant pairs of computer systems", and "each of the plurality of line replaceable units converts the selected digital control data into an analog signal and sends the analog signal to the corresponding actuator".

Thus, claims 2, 3, 5-11, 15-23, 25-33, and 35-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusions

The prior art made of record, which are listed in PTO-892, and not relied upon are considered pertinent to applicant's disclosure includes the following: Le et al.'s, Bacon et al.'s, and Hess's.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (703) 308-6273. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner,

A handwritten signature in black ink, appearing to read 'Tuan C To', is written over a horizontal line.

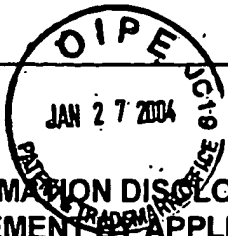
Tuan C To

Application/Control Number: 10/687,274

Page 7

Art Unit: 3663

Date: August 6, 2004



INFORMATION DISCLOSURE STATEMENT BY APPLICANT

<p>Complete if Known</p>				Application Number		10/687,274	
				Filing Date		October 15, 2003	
				First Named Inventor		Ying Chin Yeh	
				Group Art Unit		Not yet assigned 3663	
				Examiner Name		Not yet assigned <i>TUAN C TO</i>	
Sheet	1	of	2	Attorney Docket Number		BOEI-1-1216	

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
<i>TC</i>	1.	4,471,481		Shaw et al.	09-11-1984
<i> </i>	2.	5,493,497	A	Buus	02-20-1996
<i> </i>	3.	5,515,282	A	Jackson	05-07-1996
<i> </i>	4.	5,710,776	A	Tomlinson et al.	01-20-1998
<i>TC</i>	5.	5,802,077	A	Yeh	09-01-1998

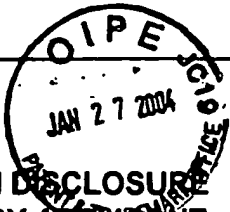
FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee of Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁶
		Office ³ Code	Number ⁴	Kind ⁵ (if known)			

Examiner Signature	<i>[Signature]</i>	Date Considered	08/6/2004
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1. Applicant's unique citation designation number (optional). 2. See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. 3. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4. For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. 6. Applicant is to place a check mark here if English language translation is attached. AB indicates that only an English language abstract is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22315-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22315-1450.



**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

Complete if Known

Application Number	10/687,274
Filing Date	October 15, 2003
First Named Inventor	Ying Chin Yeh
Group Art Unit	Not yet assigned 3663
Examiner Name	Not yet assigned TUAN TO
Attorney Docket Number	BOEI-1-1216

Sheet 2 of 2

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
TC	6.	Yeh, Ying. C., "Dependability of the Boeing 777 Flight Control System", Fifth IFIP Conference on Dependable Computing for Critical Application, DCCA-5, University of Illinois, Urbana- hampagne, Illinois, September 27-29, 1995, pp. 4-17.	

Examiner
Signature

Date
Considered

05/28/2004

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1. Applicant's unique citation designation number (optional). 2. Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22315-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22315-1450.

Notice of References Cited	Application/Control No. 10/687,274	Applicant(s)/Patent Under Reexamination YEH, YING CHIN	
	Examiner Tuan C To	Art Unit 3663	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,443,399	09-2002	Yount et al.	244/196
	B	US-5,670,856	09-1997	Le et al.	318/564
	C	US-2003/0127569	07-2003	Bacon et al.	244/195
	D	US-2004/0098140 A1	05-2004	Hess, Richard	700/003
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

The drawing(s) filed (insert date) 10/15/03 are:

- A. ☐ approved by the Draftsperson under 37 CFR 1.84 or 1.152.
B. ☒ objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated below. Corrected drawings are required.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings: Black ink or Color (3 sets required).

☐ Color drawings are not acceptable until petition is granted. Fig(s) _____

☐ Pencil and non black ink not permitted. Fig(s) _____

2. PHOTOGRAPHS. 37 CFR 1.84(b)

☐ 1 full-tone set is required. Fig(s) _____

☐ Photographs may not be mounted. 37 CFR 1.84(e)

☐ Photographs must meet paper size requirements of 37 CFR 1.84(f). Fig(s) _____

☐ Poor quality (half-tone). Fig(s) _____

3. TYPE OF PAPER. 37 CFR 1.84(c)

☐ Paper not flexible, strong, white, and durable.

Fig(s) _____

☐ Erasures, alterations, overwritings, interlineations, folds, copy machine marks not accepted.

Fig(s) _____

4. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable sizes:

21.0 cm by 29.7 cm (DIN size A4) or

21.6cm by 27.9cm (8 1/2x 11 inches)

☐ All drawing sheets not the same size.

Sheet(s) _____

☐ Drawing sheets not an acceptable size. Fig(s) _____

5. MARGINS. 37 CFR 1.84(g): Acceptable margins:

Top 2.5 cm Left 2.5 cm Right 1.5 cm Bottom 1.0 cm

☐ Margins not acceptable. Fig(s) _____

Top (T) Left (L)

Right (R) Bottom (B)

6. VIEWS. 37 CFR 1.84(h)

REMINDER: Specification may require revision to correspond to drawing changes, e.g., if Fig. 1 is changed to Fig. 1A, Fig. 1B and Fig. 1C, etc., the specification, at the Brief Description of the Drawings, must likewise be changed.

☐ Views not labeled separately or properly.

Fig(s) _____

7. SECTIONAL VIEWS. 37 CFR 1.84(h)(3)

☐ Sectional designation should be noted with

Arabic or Roman numbers. Fig(s) _____

8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)

☐ Words do not appear on a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s) _____

9. SCALE. 37 CFR 1.84(k)

☐ Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction.

Fig(s) _____

10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l)

☒ Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality). Fig(s) 2

11. SHADING. 37 CFR 1.84(m)

☐ Solid black areas pale. Fig(s) _____

☒ Solid black shading not permitted. Fig(s) 2

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p)

☐ Numbers and reference characters not plain and legible. Fig(s) _____

☐ Figure legends are poor. Fig(s) _____

☐ Numbers and reference characters not oriented in the same direction as the view. 37 CFR 1.84(p)(1) Fig(s) _____

☐ English alphabet not used. 37 CFR 1.84(p)(2) Fig(s) _____

☒ Numbers, letters and reference characters must be at least 32 cm (1/8 inch) in height. 37 CFR 1.84(p)(3). Fig(s) 1 12

13. LEAD LINES. 37 CFR 1.84(q)

☐ Lead lines missing. Fig(s) _____

14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(t)

☐ Sheets not numbered consecutively, and in Arabic numerals beginning with number 1. Sheet(s) _____

15. NUMBERING OF VIEWS. 37 CFR 1.84(u)

☐ Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s) _____

16. DESIGN DRAWINGS. 37 CFR 1.152

☐ Surface shading shown not appropriate.

Fig(s) _____
☐ Solid black surface shading is not permitted except when used to represent the color black as well as color contrast. Fig(s) _____

COMMENTS:

Reviewer Tang

If you have questions, call (703) 305-8404.

Date 6/23/04

Attachment to Paper No. _____